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EXAMINER	
NGUYEN, TU MINH	
ART UNIT	PAPER NUMBER
3748	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,467	NAIK ET AL.	
	Examiner	Art Unit	
	Tu M. Nguyen	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. An Applicant's Amendment filed on October 26, 2006 has been entered. Claims 1, 3, 10, 12, 18, and 20 have been amended. Overall, claims 1-26 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10, 13, 18, 19, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (U.S. Patent 5,775,099).

Re claim 18, as shown in Figures 1, 7, 12, and 15-18, Ito et al. disclose an article of manufacture (30) comprising a storage medium (33) having a computer program encoded therein for causing an engine controller (30) to control a direct injection internal combustion engine (1) operable in a homogenous region of operation generally associated with relatively high engine load/high engine speed operating conditions and a non-homogeneous region of operation generally associated with relatively low engine load/low engine speed operating conditions (see Figure 7), the engine including a NOx trap (26) generally effective to accumulate NOx emissions during lean operation of the engine (see Figure 12A) and to release

the accumulated NOx emissions during rich operation of the engine (see Figure 12B), the program including:

- code for providing a first region of homogeneous engine operation (when engine load is between L1 and L2) during periods of engine operation wherein the accumulated NOx emissions (ΣNOX) are below a first predetermined threshold (MAX) (when steps 100 and 101 have NO answer and when engine load is between L1 and L2, the engine is operated with a combined stratified and homogeneous lean air-fuel mixture in steps 102-103 as shown in Figure 7); and,

- code for providing a second region of homogeneous engine operation (when engine load is greater than L2) greater than the first region of homogeneous operation during periods of engine operation wherein the accumulated NOx emissions (ΣNOX) are not below the first predetermined threshold (MAX) (when steps 100 and 101 have YES answer, step 118 has NO answer, and when engine load is greater than L2, the engine is operated with a homogeneous rich air-fuel mixture in steps 119-120 as shown in Figure 15);

wherein the first and second regions of homogeneous engine operation comprise operating regions defined by engine speed and engine load (see lines 51-56 of column 10).

Re claims 19 and 21, the article of manufacture of Ito et al. further comprises code for regenerating the NOx trap when the engine is operated in the second region of homogeneous operation (when engine load is between L2 and L0), wherein regenerating the NOx trap is caused to occur as a function of the accumulated NOx emissions in the NOx trap (when engine load is between L2 and L0; wherein the engine air-fuel ratio is still lean and the NOx trap is

regenerated only when an accumulated NOx emissions (ΣNOX) are above a first predetermined threshold (MAX)).

Re claim 22, the article of manufacture of Ito et al. further comprises code for terminating regeneration and resetting (in step 114) the accumulated NOx to the level of the remaining stored NOx in the lean NOx trap when a regeneration ending event is reached (step 113 with YES answer).

Re claims 10, as depicted in Figures 1, 15, 17, and 18, Ito et al. disclose a method for controlling regeneration of a lean NOx trap (26) comprising:

- estimating (in step 100) an accumulated NOx in a NOx trap located in the exhaust path of an engine; and,

- hastening regeneration of the NOx trap by reducing the size of a stratified charge operating region of the engine when the accumulated NOx exceeds a first threshold value and initiating regeneration when a full stratified charge operating region of the engine is exited (when steps 100 and 101 have YES answer, step 118 has NO answer, and when engine load is less than L1, the engine is switched from a normal full stratified air-fuel mixture to a combined stratified and homogeneous rich air-fuel mixture in steps 119-120 as shown in Figure 15);

wherein reducing the stratified charge operating region comprises reducing engine speed and engine load at which to operate the engine in stratified charge operating mode (regeneration of the NOx trap is only performed if engine load and engine speed are reduced so that the engine load is at a level below L1 (step 118 with NO answer) (see lines 51-56 of column 10)).

Re claim 13, the method of Ito et al. further comprises a step of terminating regeneration and resetting (in step 114) the accumulated NOx to the level of the remaining stored NOx in the lean NOx trap when a regeneration ending event is reached (step 113 with YES answer).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 14 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. as applied to claims 13 and 22, respectively, above, in view of Ishii et al. (U.S. Patent Application 2002/0029562).

The method and article of manufacture of Ito et al. disclose the invention as cited above, however, fail to disclose that the regeneration ending event is selected from the group consisting of rich deviation of gases flowing out of the NOx trap, expiration of a regeneration timer, and engine torque demand below a threshold value.

As shown in Figure 1, Ishii et al. disclose an engine exhaust purifying apparatus comprising a NOx trap (15) and a downstream air-fuel ratio sensor (25). As illustrated in Figure 6 and indicated in paragraph 0062, Ishii et al. teach that it is conventional in the art to terminate a regeneration event of the NOx trap when rich deviation of gases flowing out of the NOx trap is detected. It would have been obvious to one having ordinary skill in the art at the

time of the invention was made, to have utilized the sensor and teaching by Ishii et al. in the method and article of manufacture of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

6. Claims 20 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. as applied to claim 18 above, in view of Ishii et al. and Takeshima et al. (U.S. Patent 5,437,153).

Re claim 20, the article of manufacture of Ito et al. further comprises code for regenerating the NOx trap upon the first to occur of a) the accumulated NOx emissions exceeding the first predetermined threshold, and b) the engine being operated in the second region of homogeneous operation (when engine load is greater than L0 (lines 12-19 of column 11)).

Ito et al., however, fail to disclose that another condition for the regeneration of the NOx trap to occur includes the accumulated NOx emissions exceeds a second predetermined threshold greater than the first predetermined threshold, wherein the second predetermined threshold comprising a fraction of capacity of the NOx trap.

As shown in Figure 1, Ishii et al. disclose an engine exhaust purifying apparatus comprising a NOx trap (15). As depicted in Figure 11 and indicated in paragraph 0075, Ishii et al. teach that it is conventional in the art to force a regeneration step of the NOx trap when an accumulated NOx emissions exceeds a second predetermined threshold (TNOAMX) greater than a first predetermined threshold (TNOAP). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Ishii et al. in the article of manufacture of Ito et al., since the use thereof would have been

routinely practiced by those with ordinary skill in the art to prevent inadvertent release of NOx emissions into the atmosphere.

As shown in Figure 1, Takeshima et al. disclose an exhaust gas purification device for an internal combustion engine, comprising a NOx trap (17). As depicted in Figure 15, Takeshima et al. teach that it is conventional in the art to monitor (in step 207) an accumulated amount of NOx in the trap as a fraction of its capacity to determine a time to regenerate the NOx trap. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Takeshima et al. in the article of manufacture of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

Re claim 24, in the modified article of manufacture of Ito et al., regenerating the NOx trap is caused to occur as a function of the accumulated NOx emissions in the NOx trap (step 100 with YES answer).

Re claims 25-26, the modified article of manufacture of Ito et al. further comprises code for terminating regeneration and resetting (in step 114) the accumulated NOx to the level of the remaining stored NOx in the lean NOx trap when a regeneration ending event is reached (step 113 with YES answer), wherein the regeneration ending event is selected from the group consisting of rich deviation of gases flowing out of the NOx trap, expiration of a regeneration timer, and engine torque demand below a threshold value (in Ishii et al., as shown in Figure 6, a regeneration event is ended when a rich deviation of gases flowing out of the NOx trap is detected).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. as applied to claim 10 above, in view of Wachi et al. (U.S. Patent 6,763,657).

The method of Ito et al. discloses the invention as cited above, however, fails to disclose that the method further comprises the steps of estimating the temperature of the NOx trap; and determining a desired air-fuel ratio for initiating regeneration of the NOx trap, the desired air-fuel ratio being determined based upon one or a combination of the estimated accumulated NOx stored within the NOx trap and the temperature of the NOx trap.

As shown in Figure 1, Wachi et al. disclose an engine having a NOx trap (6) and a temperature sensor (9) to estimate a temperature of the NOx trap. As depicted in Figures 2 and 3, Wachi et al. teach that it is conventional in the art to determine (in step S09) a desired air-fuel ratio for initiating regeneration of the NOx trap, wherein the desired air-fuel ratio being determined based upon one or a combination of the estimated accumulated NOx stored within the NOx trap and the temperature of the NOx trap (see Figure 3). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Wachi et al. in the method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to increase a regeneration efficiency of the NOx trap.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Wachi et al. as applied to claim 11 above, and further in view of Ishii et al. and Takeshima et al.

As taught by Wachi et al., the modified method of Ito et al. further comprises:

- determining whether (in step S08) the temperature of the NOx trap exceeds a threshold temperature (T1); and

- initiating regeneration of the NOx trap (steps S09-S10) when the estimated temperature of the NOx trap exceeds the threshold temperature (step S08 with YES answer) by forcing homogenous operation of the engine at the desired air-fuel ratio.

Ito et al., however, fail to disclose that another condition for the regeneration of the NOx trap to occur includes the accumulated NOx emissions exceeds a second predetermined threshold greater than the first predetermined threshold, wherein the second predetermined threshold comprising a fraction of capacity of the NOx trap.

As shown in Figure 1, Ishii et al. disclose an engine exhaust purifying apparatus comprising a NOx trap (15). As depicted in Figure 11 and indicated in paragraph 0075, Ishii et al. teach that it is conventional in the art to force a regeneration step of the NOx trap when an accumulated NOx emissions exceeds a second predetermined threshold (TNOAMX) greater than a first predetermined threshold (TNOAP). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Ishii et al. in the modified method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to prevent inadvertent release of NOx emissions into the atmosphere.

As shown in Figure 1, Takeshima et al. disclose an exhaust gas purification device for an internal combustion engine, comprising a NOx trap (17). As depicted in Figure 15, Takeshima et al. teach that it is conventional in the art to monitor (in step 207) an accumulated amount of NOx in the trap as a fraction of its capacity to determine a time to regenerate the NOx trap. It

would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Takeshima et al. in the modified method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. as applied to claim 13 above, in view of Gui et al. (U.S. Patent 6,722,121).

The method of Ito et al. discloses the invention as cited above, however, fails to disclose that the method further comprises a step of monitoring the elapsed regeneration event time, wherein the regeneration ending event is reached when the elapsed regeneration event time exceeds a target maximum regeneration event time interval.

As shown in Figure 1, Gui et al. disclose an engine exhaust purifying device comprising a NOx trap (35). As illustrated in Figure 2 and indicated on lines 2-4 of column 6, Gui et al. teach that it is conventional in the art to terminate a regeneration event of the NOx trap when an elapsed regeneration event time exceeds a target maximum regeneration event time interval. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Gui et al. in the method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

10. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. as applied to claim 13 above, in view of applicant's admitted prior art.

The method of Ito et al. discloses the invention as cited above, however, fails to disclose that the method further comprises a step of monitoring driver torque demand on the engine,

wherein the regeneration ending event is reached when the driver torque demand drops below a threshold value, and wherein the regeneration ending event is triggered by a driver initiated action.

Since applicant fails to challenge the examiner's official notice that it is well known to those with ordinary skill in the art to monitor a driver torque demand on the engine, wherein the regeneration ending event in Ito et al. is reached when the driver torque demand drops below a threshold value, and wherein the regeneration ending event is triggered by a driver initiated action, it is therefore assumed that applicant has acquiesced with the examiner on such feature or limitation.

11. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Takeshima et al.

Re claim 1, as shown in Figures 1, 7, 12, and 15-18, Ito et al. disclose a method for controlling a direct injection internal combustion engine (1) operable in a homogenous region of operation generally associated with relatively high engine load/high engine speed operating conditions and a non-homogeneous region of operation generally associated with relatively low engine load/low engine speed operating conditions (see Figure 7), the engine including a NOx trap (26) generally effective to accumulate NOx emissions during lean operation of the engine (see Figure 12A) and to release the accumulated NOx emissions during rich operation of the engine (see Figure 12B), comprising:

- providing a first region of homogeneous engine operation (when engine load is between L1 and L2) during periods of engine operation wherein the accumulated NOx emissions (ΣNOX) are below a first predetermined threshold (MAX) (when steps 100 and 101 have NO

answer and when engine load is between L1 and L2, the engine is operated with a combined stratified and homogeneous lean air-fuel mixture in steps 102-103 as shown in Figure 7); and,

- providing a second region of homogeneous engine operation (when engine load is greater than L2) greater than the first region of homogeneous operation during periods of engine operation wherein the accumulated NOx emissions (ΣNOX) are not below the first predetermined threshold (MAX) (when steps 100 and 101 have YES answer, step 118 has NO answer, and when engine load is greater than L2, the engine is operated with a homogeneous rich air-fuel mixture in steps 119-120 as shown in Figure 15);

wherein the first and second regions of homogeneous engine operation comprise operating regions defined by engine speed and engine load (see lines 51-56 of column 10).

Ito et al., however, fail to disclose that instead of an amount of accumulated NOx emissions, a capacity of the NOx trap is monitored to determine a time to regenerate the NOx trap.

As shown in Figure 1, Takeshima et al. disclose an exhaust gas purification device for an internal combustion engine, comprising a NOx trap (17). As depicted in Figure 15, Takeshima et al. teach that it is conventional in the art to monitor (in step 207) an accumulated amount of NOx in the trap as a fraction of its capacity to determine a time to regenerate the NOx trap. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Takeshima et al. in the method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

Re claims 2 and 4, the modified method of Ito et al. further comprises a step of regenerating the NOx trap when the engine is operated in the second region of homogeneous operation (when engine load is between L2 and L0), wherein regenerating the NOx trap is caused to occur as a function of the accumulated NOx emissions in the NOx trap (when engine load is between L2 and L0, the engine air-fuel ratio is still lean and the NOx trap is regenerated only when an accumulated NOx emissions is above a first predetermined threshold (MAX)).

Re claim 5, the modified method of Ito et al. further comprises a step of terminating regeneration and resetting (in step 114) the accumulated NOx to the level of the remaining stored NOx in the lean NOx trap when a regeneration ending event is reached (step 113 with YES answer).

12. Claims 6 and 3, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. in view of Takeshima et al. as applied to claims 5 and 1, respectively, above, and further in view of Ishii et al.

Re claim 6, the modified method of Ito et al. discloses the invention as cited above, however, fails to disclose that the regeneration ending event is selected from the group consisting of rich deviation of gases flowing out of the NOx trap, expiration of a regeneration timer, and engine torque demand below a threshold value.

As shown in Figure 1, Ishii et al. disclose an engine exhaust purifying apparatus comprising a NOx trap (15) and a downstream air-fuel ratio sensor (25). As illustrated in Figure 6 and indicated in paragraph 0062, Ishii et al. teach that it is conventional in the art to terminate a regeneration event of the NOx trap when rich deviation of gases flowing out of the NOx trap is detected. It would have been obvious to one having ordinary skill in the art at the

time of the invention was made, to have utilized the sensor and teaching by Ishii et al. in the modified method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

Re claim 3, the modified method of Ito et al. further comprises a step of regenerating the NOx trap upon the first to occur of a) the accumulated NOx emissions exceeding the first predetermined threshold, and b) the engine being operated in the second region of homogeneous operation (when engine load is greater than L0 (lines 12-19 of column 11)).

Ito et al., however, fail to disclose that another condition for the regeneration of the NOx trap to occur includes the accumulated NOx emissions exceeds a second predetermined threshold greater than the first predetermined threshold, wherein the second predetermined threshold comprising a fraction of capacity of the NOx trap.

As shown in Figure 1, Ishii et al. disclose an engine exhaust purifying apparatus comprising a NOx trap (15). As depicted in Figure 11 and indicated in paragraph 0075, Ishii et al. teach that it is conventional in the art to force a regeneration step of the NOx trap when an accumulated NOx emissions exceeds a second predetermined threshold (TNOAMX) greater than a first predetermined threshold (TNOAP). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Ishii et al. in the modified method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to prevent inadvertent release of NOx emissions into the atmosphere.

As shown in Figure 1, Takeshima et al. disclose an exhaust gas purification device for an internal combustion engine, comprising a NOx trap (17). As depicted in Figure 15, Takeshima

et al. teach that it is conventional in the art to monitor (in step 207) an accumulated amount of NOx in the trap as a fraction of its capacity to determine a time to regenerate the NOx trap. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Takeshima et al. in the modified method of Ito et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to timely regenerate a NOx trap.

Re claim 7, in the modified method of Ito et al., regenerating the NOx trap is caused to occur as a function of the accumulated NOx emissions in the NOx trap (step 100 with YES answer).

Re claim 8, the modified method of Ito et al. further comprises a step of terminating regeneration and resetting (in step 114) the accumulated NOx to the level of the remaining stored NOx in the lean NOx trap when a regeneration ending event is reached (step 113 with YES answer).

Re claim 9, in the modified method of Ito et al., the regeneration ending event is selected from the group consisting of rich deviation of gases flowing out of the NOx trap, expiration of a regeneration timer, and engine torque demand below a threshold value (in Ishii et al., as shown in Figure 6, a regeneration event is ended when a rich deviation of gases flowing out of the NOx trap is detected).

Response to Arguments

13. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are not persuasive.

In response to applicant's argument that Ito et al. fail to disclose or teach an engine operating region defined by engine speed and engine load (page 12 of the Applicant's Amendment), the examiner respectfully disagrees.

The text on lines 51-56 of column 10 in Ito et al. reads as follows:

"In this case, the amount of the exhaust gas, that is, the amount of intake air, is a function of the amount of depression L of the accelerator pedal 40 and the engine rotational speed N. The average air-fuel ratio A/F is also a function of the amount of depression L of the accelerator pedal 40 and the engine rotational speed N."

Thus, based on the above disclosure, an intake air amount and an engine average air-fuel ratio in Ito et al. are a function of both engine load (estimated by an amount of depression of an accelerator pedal) and engine rotational speed, it is clear that Ito et al. disclose or teach the claimed limitation in dispute.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tu M. Nguyen

TMN
January 5, 2007

Tu M. Nguyen
Primary Examiner
Art Unit 3748